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# Exercise : nature's defense against depression and anxiety

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## Abstract

Exercise and mental health is a relatively new area of study within health care and mental health disciplines. Whereas many mental health professionals focus on the mental status of clients, research suggests that physical health, exercise in particular, has a positive impact on mental health and well-being. Currently, typical treatment approaches lean toward psychotropic medication, psychotherapy, or a combination of both. However, mental health issues such as depression and anxiety are becoming so widespread that other effective and affordable treatment approaches and options are greatly needed and vital to the overall mental health of society. Utilizing exercise in the treatment of anxiety and depression is a new and potentially powerful approach for therapists to consider.

The purpose of this paper is to review important factors and connections found in the research pertaining to exercise and mental health. Rationale is provided for incorporating exercise into treatment with clients who suffer from depression and anxiety. Finally, the paper will summarize treatment considerations for effectively using exercise with clients.

# EXERCISE: NATURE'S DEFENSE AGAINST DEPRESSION AND ANXIETY

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Abstract

Exercise and mental health is a relatively new area of study within health care and mental health disciplines. Whereas many mental health professionals focus on the mental status of clients, research suggests that physical health, exercise in particular, has a positive impact on mental health and well-being. Currently, typical treatment approaches lean toward psychotropic medication, psychotherapy, or a combination of both. However, mental health issues such as depression and anxiety are becoming so widespread that other effective and affordable treatment approaches and options are greatly needed and vital to the overall mental health of society. Utilizing exercise in the treatment of anxiety and depression is a new and potentially powerful approach for therapists to consider. The purpose of this paper is to review important factors and connections found in the research pertaining to exercise and mental health. Rationale is provided for incorporating exercise into treatment with clients who suffer from depression and anxiety. Finally, the paper will summarize treatment considerations for effectively using exercise with clients.

It is a commonly accepted belief that exercise is a key component to a healthy lifestyle. Countless research studies have discovered answers to what promotes healthy living. Time and again experts have shown that one of the most important factors in maintaining vitality is exercising the body (Allan & Scheidt, 1996; CDC 2006; WHO, 2006; Hill, 2002; Faulkner & Taylor, 2005). Exercise, or physical activity, has a direct effect on physical health because the human body is made to move. What is less widely known is that the body is designed to move in a way that maintains and improves mental health. Over the last couple of decades researchers have shown that exercise can prevent or significantly improve mental health conditions such as depression and anxiety (Leith, 1994; Mayo Clinic, 2005; Landers, 1997; Thayer, 2001). In some individual cases exercise can be added to traditional mental health treatments such as psychotherapy and psychotropic medication. This paper will show exercise as an important component to mental health and review how exercise can be utilized more often for its therapeutic and healing components.

The World Health Organization (WHO)(2001) estimates that 25% of individuals develop one or more mental or behavioral disorders during a given stage of life. This estimate clearly points to the fact that cost effective treatments are vital to populations all over the world. In 2006, The National Institute of Mental Health (NIMH) reported that Major Depressive Disorder is the leading cause of disability for those ages 15 to 44. This number was taken from The World Health Organization's (2002) report on the burden of disease. Large portions of the population are not only suffering from mental health issues, but in many cases the effects are debilitating to the individual and society as a whole. Many people who struggle with mental health issues are unable to get treatment, unable

to continue functioning on a daily basis, and may eventually become a burden to their families and to society. The current health care trends point to psychotropic mediation as the answer (Mark, Coffey, Vandivort-Warren, Harwood, & King, 2005). Medication is often sought after as the end all cure. However, what if there was an effective approach to improving mental health that did not cost a dime? What if better physical health was the most common side effect of a treatment approach called exercise? Perhaps nature intended for humans to adjust to fluctuating moods and maintain mental health with exercise.

In December of 2001, the World Health Organization declared its initiative on depression in public health. The overall objective was to close the treatment gap between the substantial number of people suffering from depression, and the availability of cost effective treatments. Research regarding the effectiveness of exercise on improving mental health shows that exercise could be critical in meeting this global objective. This paper is intended to explain mental and physical health holistically as a way of addressing mental health illnesses. Exercise is being proposed as another treatment option in the battle against depression and anxiety.

## Mental Health Status of Society

An estimated 121 million people currently suffer from depression (WHO, 2001). According to Kessler, Chiu, Demler, & Walters (2005), Major Depressive Disorder affects 6.7% of the U.S. population age 18 and older. The same authors report that 18.1% of people 18 years and older suffer from an anxiety disorder in any given year. In terms of gender, 9.5% of women and 5.8% of men will suffer from a depressive episode over the course of a year (WHO, 2001; Nolen-Hoeksema, 1990; Kessler, 2003). With

statistics likes these it is no wonder more and more people look for a "quick fix" in order to feel better. However, knowing the scope of the problem does not answer the question of why people become depressed and anxious initially. Several theories exist to address the root of the disorders; however no conclusive answer exists to date. Understanding the complex mind-body connection has lead to a more recent theory suggesting poor mental health may be the result of poor physical health (Thayer 2001; Leith, 1994; Landers, 1997; Mayo Clinic, 2005). Ongoing research does point to a strong connection between exercise and mental health.

For example, according to a report from the surgeon general and the National Center for Chronic Disease and Health Promotion (CDC) (1999), 60% of American adults are not regularly physically active, and 25% are not active at all. Could there be a connection between those who are inactive and those who suffer from mental health issues? The CDC (1999) and Hill (2002) report that physical inactivity is more prevalent among women than among men. As cited earlier, depression is also more common in women. Perhaps a theory which encompasses physical and mental health could more effectively explain the etiology of common disorders such as depression and anxiety, and more importantly offer a natural treatment option such as exercise.

*Current Trends in Treating Depression and Anxiety*

In society today, many people seek medication to treat physical and mental ailments. Recent trends point to the fact that more and more money is being spent each year on psychotropic medication to treat depression and anxiety (Frank, Conti, and Goldman, 2005). In fact according to Frank et al, the largest class of psychotropic drugs are anti-psychotics and anti-depressants. In 1987, it was estimated that 2.8 billion dollars was

spent on psychotropic medication; by 2001 this number had grown to nearly 18 billion (Frank et al, 2005). These numbers show that society's dependence on a pill to fix mood changes is growing by the year. Clinical studies on antidepressants have found that compliance with treatment leads to effective outcomes and reduces the likelihood of relapse or reoccurrence of Major Depressive Episodes (Frank et al, 2005). This paper is not challenging the effectiveness of medication in treating depression. The question is whether or not medication is the first and only treatment option.

Psychotropic medications have side effects. The medication is costly and not everyone can afford it as a sole treatment option. It is estimated that people who are treated with antidepressants spend up to 3 times more on outpatient healthcare than those who do not use drug therapy (Simon, Von Korff, & Barlow, 1995, as cited in Landers, 1997). Depression is costly to the health care system and to those who seek effective treatments. Some believe medication is the quickest and most reliable form of treatment. Unfortunately, less attention is given to alternate forms of treatment such as counseling, changes in lifestyle, and exercise.

Otis and King (2006) reported that it is becoming more popular for patients to seek medication from a physician or psychiatrist while also seeking counseling from a mental health professional. This is referred to as "split treatment." If doctors and counselors already use collaborative treatment with patients, it is possible that these professionals could collaborate with patients on exercise regimens as well.

Kessler, Chiu, Demler, & Walters, (2005) brought an important piece of statistical information to the attention of health care professionals. According to these authors, one third of diagnosable DSM-IV disorders are considered to be mild. This suggests that

those individuals with milder forms of depression and anxiety may not require intense and costly treatments such as medication. In fact, evidence presented later in this paper suggests that exercise may be just the intervention for people who suffer from milder forms of depression and anxiety. Furthermore, it is possible that these individuals could spend much less on treatment if exercise would prove to be effective.

Exercise is not being proposed as a replacement for all other mental health treatments. This paper is exploring exercise as an important role in the search for reliable, effective, and affordable mental health treatment for the large percentage of the population in need.

## Physical Benefits of Exercise

Society as a whole tends to agree that exercise is good for the body. What is less widely known is how exercise actually buffers the body systems to function more efficiently. Hill (2002) notes that regular exercise increases the body's capacity to handle stress. Specifically, exercise conditions the body and helps prepare it for the stress of daily living. Stress is known to have an impact on heart rate, blood pressure, and other chemical responses in the body. By deliberately putting stress on the body (exercise), systems of the body are strengthened and prepared to deal with unexpected stress. Exercise is a short term stressor that provides chronic stress relief (Hill, 2002).

Exercise has also been shown to reduce the risk of heart disease, colon cancer, high blood pressure, and diabetes (CDC, 1999). It also aids in controlling weight, developing lean muscle, and reducing body fat. As a whole, all of the effects of exercise help to maintain healthy muscles, joints, and bones. According to Allan and Scheidt (1996), patients who suffer from coronary heart disease or other heart problems benefit both physically and mentally from exercise. As they engage in exercise, their conditions

improve physically which allow them to feel better mentally. Richard A. Stein (1996) states, "In short, if exercise were a pill, all physicians would prescribe it, and probably take it" (*Heart and Mind*, Ch. 15, page 394).

The physical benefits of exercise lead to chemical changes within the body that have actually been shown to affect mood (Szabo, 2003; Paluska & Schwenk, 2000). Experts at the Mayo Clinic (2005) point to research and evidence suggesting that exercise positively affects mood-enhancing neurotransmitters in the brain. Specifically, exercise leads to the release of endorphins, relief of muscle tension, and it improves sleep. Exercise aids in reducing levels of the stress hormone cortisol and helps body temperatures increase, which tends to have a calming affect on the body. Thus, not only does exercise help to ward off stress and disease, but it can also promote positive brain and chemical activity which aid in balancing moods (www.mayoclinic.com, 2005).

Exercise promotes a chemical balance in the brain that allows one to feel good (www.mayoclinic.com, 2005). Additionally, exercise can serve as a distraction from negative thoughts regarding day to day issues. Being involved with physical activity in a public place can decrease isolation by encouraging interaction with others. Exercise has also been linked to increased levels of self-confidence. With exercise, there is a sense of accomplishment through meeting goals and an increase of positive feelings of self-worth and appearance (www.mayoclinic.com, 2005; Hill, 2002). Overall, exercise serves as a catalyst for positive changes in the body, both physically and mentally.

## Theoretical Components

Finding out how exercise affects mental health involves looking at several different theories. Health professionals from various disciplines seek to understand the connection between physical health and mental health. Theories have emerged over the past couple of decades as to how exercise helps reduce symptoms of depression and anxiety. Leith (1994) cites four important theories which help explain this connection. The first two theories presented specifically deal with exercise and the relief of depression.

The endorphin hypothesis suggests that the physiological changes that take place in the body during exercise cause the brain to release endorphins (Leith, 1994; Hays, 1999; Landers, 1997; Daley, 2002). Although researchers have found it difficult to prove a direct link between exercise and the increase of endorphins in the brain, it remains one of the most popular theories in exercise and mental health (Daley, 2002). Because chemical changes in the brain are difficult to measure, studies have used exercise deprivation to show that changes do in fact occur (Hays, 1999). For example, a team of researchers (Morris, Steinberg, Sykes, & Salmon, 1990, as cited in Hays, 1999) asked 40 males who had just completed a marathon to volunteer in changing their exercise routine for two weeks. Half of the males were asked not to run, while the other half were instructed to maintain their usual running routine. Researchers noted that within the first week the males in the exercise deprivation group were experiencing problems coping with daily stress and with sleep. By week two, the exercise deprivation group was experiencing symptoms of depression and anxiety. After the two-week period the exercise-deprived males were asked to resume running. The two groups balanced out on self-report measures and no differences were found thereafter.

This particular study, and others like it, does not necessarily show that exercise increases mood enhancing endorphins, but the results suggest the absence of exercise can have a negative affect on people. Clearly, without exercise some people experience a negative change in mood. It would appear likely that the body and brain depend on exercise to some degree to balance chemicals that affect mood. Additionally, the effect may depend on how long a person has been exercising or not exercising. Those who routinely exercise may respond differently to increased or decreased levels of physical activity than those who rarely or never exercise.

The second theory which links exercise to a decrease in depression is the monoamine hypothesis. According to this theory, when a person exercises there may be an increase in neurotransmitters in the brain such as norepinephrine, dopamine, and serotonin; the same neurotransmitters that psychotropic medication target and increase (Leith, 1994). If indeed there is an increase in these neurotransmitters during physical activity, exercise may be just as effective as medication for those who suffer from mild depression.

The third theory is the thermogenic hypothesis, which explains a possible link between exercise and a decrease in anxiety symptoms. This hypothesis states that there is an increase in body temperature during exercise which helps people relax and sleep better (Leith, 1994; Van Raalte & Brewer, 1996). It is believed by some that an increased tolerance to cold and warm body temperatures leads to decreased muscle tension and state anxiety (Koltyn & Morgan, 1993, as cited in Sime, 1996). According to Sime (1996), the thermogenic hypothesis originated in the 1960's and there is still a need for more conclusive research and evidence to show how an increase in body temperature leads to reduced anxiety. In fact Daley (2002) notes that more recently, the thermogenic

hypothesis is thought to be one of the least complete models in understanding how exercise improves mental health.

The fourth theory, which links exercise to anxiety reduction, is the distraction or "time out" hypothesis. This theory simply states that when one engages in exercise, he or she is not thinking about everyday worries, stress, and life problems (Leith, 1994). If anxiety is caused by ruminating negative thoughts, exercise may be a way to reduce or take a break from these thoughts. According to Sime (1996), studies have shown that periods of exercise may be more effective in providing distraction than periods of silence or rest. If indeed exercise provides a break from anxiety provoking thoughts, individuals may experience overall relief from anxiety symptoms.

Clearly more research is needed to support these and other theories. In reality, each theory may provide a partial explanation to how exercise promotes mental health.

## Exercise Type and Frequency

If exercise does in fact improve mental health, what types of exercise are best and how much does one need? A meta-analysis by North, McCullagh, and Tran (1990) summarized findings regarding exercise and depression. As a whole, the results suggested that exercise significantly reduces symptoms of depression in males and females of all ages. Furthermore, both aerobic and anaerobic exercises have been shown to be effective. The studies also concluded that the longer a person is involved in an exercise program, the more significant the overall mental health benefits will be. Lastly, the meta-analysis suggested that exercise was shown to be equally effective in treating depression as compared to other treatments (North, McCullagh, & Tran, 1990).

Building on these findings, Leith (1994) suggested that running and walking are associated most with reductions in depression, and both high intensity and low intensity workouts can be effective. According to Landers (1997), studies have shown that exercise is most effective in reducing depression after several weeks of regular activity; when exercise is done several times a week; and more vigorous types of exercise such as running are best. However, a more recent study done by Szabo in 2003 suggested that the intensity of the exercise did not determine whether or not subjects experienced a positive change. In fact, in this study subjects were asked to jog or run at their own pace and those who chose to exercise at a lower intensity had just as much positive change in affect as those who chose a higher intensity workout.

The Mayo Clinic (2005) and other authors such as Van Raalte and Brewer (1996) suggest that it may take 30 minutes of exercise, three to five times a week in order to significantly improve symptoms of depression. However, it is also suggested that just ten to fifteen minutes of physical activity can quickly improve mood. The same set of guidelines has been suggested more recently by the CDC and The National Institute of Mental Health (www.nimh.gov/publicat/numbers.cfm, 2006). The suggested amount of exercise is an attainable goal for most physically able people. Motivation to get started and to maintain will be discussed further in later parts of this paper.

In terms of relief from anxiety, specific exercise suggestions have also been made. Landers (1997) summarized research suggesting that consistent, weekly aerobic exercise is best for reducing anxiety levels. Furthermore, it was noted that those who are less physically fit and those who have high levels of anxiety will benefit the most from beginning an exercise regimen. This is good news because one does not have to be

physically fit initially to reap the benefits of exercise. A review of 27 studies between 1960 and 1991 reported that 81% of authors concluded that physical activity was indeed related to reduced symptoms of anxiety (Petruzzello, Landers, Hatfield, Kubitz, and Salazar, 1991).

## Exercise, Depression and Sleep

Another connection between mental health issues and exercise is sleep. Sleep patterns have been shown to change in those individuals who suffer from depression. Because sleep is such an important and functional part of daily life, it is one of the major diagnostic criteria used to diagnose depressive disorders (DSM-IV, 2002). Physical activity and exercise have been shown to have a direct impact on sleep patterns (Landers, 1997; Faulkner & Taylor, 2005).

Cukrowicz, Otamendi, Pinto, Bernert, Krakow, and Joiner (2006) cite that in several studies, depressed individuals enter Rapid Eye Movement (REM) sleep much more quickly, experience more intense activity during REM sleep, and experience little or no deep sleep. These authors suggest that since non-depressed subjects spend far less time in REM sleep, they are protected from the sleep disturbances that their depressed counterparts experience. There is something significant about the effect of depression on the body which does not allow a person to achieve quality sleep. In fact, Roberts, Shema, Kaplan, and Strawbridge (2000) suggested that sleep is a significant correlate to depression because it is a universal complaint among depressed individuals. These authors go on to suggest that sleep problems and complaints may actually predict future episodes of depression (Perlis, Gles, Buysse, & Kupfer, 1997). Perlis et al (1997) found that sleep disturbances came several weeks before a reoccurrence of Major Depressive

Disorder, and it was the first symptom to be reported. In a study done by Ford and Kamerow (as cited in Roberts et al, 2000), subjects who complained of persisting sleep disturbances were 3 times more likely to develop depression within a year than those subjects who had no sleep complaints. It appears that missing out on the renewing benefits of sleep puts one at risk for increased stress, fatigue, negative mood, and depression overall.

A review of literature from Roberts et al (2000) also pointed to evidence that sleep problems may not only play a role in the onset of depression, but these problems may also affect the course of the current episode. The authors suggested that if people who are already depressed continue to experience sleep problems, their symptoms may actually become worse.

Exercise is often a recommendation of health care providers to patients who complain of sleep disturbances because it can be a simple and cost effective way to address the problem (Faulkner & Taylor, 2005). When the body uses energy and experiences the rise and fall of body temperature, this can lead to a better nights sleep. According to Faulkner and Taylor (2005), epidemiological studies consistently show that people who exercise experience better sleep. These authors reviewed 11 different studies and found that exercise was associated with better sleep in each study. In one instance, participants rated exercise as the most important behavior they associated with sleep. Other outcomes suggested that when habitual exercise stopped, sleep disturbances emerged. Faukner and Taylor (2005) note that a decrease in REM sleep is often experienced after acute bouts of exercise. Interestingly enough, the same authors pointed out that many antidepressants

have been shown to reduce REM sleep as well, in essence creating the same positive effect on sleep patterns that exercise can deliver.

If exercise helps people achieve better sleep quality, and sleep patterns are related to depression, this highlights another strong connection between exercise and reduced levels of depression. Exercise and antidepressants appear to have similar effects on sleep patterns, suggesting that exercise alone could be effective in treating sleep-related symptoms of depression.

## Therapeutic Components of Exercise

As presented, exercise clearly has physical benefits and appears to have a positive influence on mental health. Physical activity on its own seems to improve the body and the mind. On a therapeutic level, exercise may also improve cognitive patterns and evaluations of self. Hayes (1999) surveyed several therapists and clients in the general population and found that some people reported thinking differently during exercise. Feedback on questionnaires suggested that the mind may go blank or take a break from constructive thinking. Other responses in the survey suggested an increase in creative thoughts or problem-solving ideas as a result of exercise. For certain individuals exercise can lead to brief cognitive changes and adjustments which may be therapeutic.

The overall therapeutic effect of exercise is best understood on a cumulative level as physical and mental changes work together. In Robert E. Thayer's book *Calm Energy* (2001), he states that a physical and mental state of calmness is achieved through exercise which leads to energy in the body and mind. Thayer (2001) believes inactivity harbors stress and tension in the body and mind which leads to overeating as an attempt to regulate mood. It is believed that mood fluctuations can be regulated with exercise in

order to go from a physical and mental state of *tense tiredness* to *calm energy* (Thayer, 2001).

*Exercise and global self-esteem*

Another component to exercise and mental health is self-esteem. Increased self-esteem has also been connected to exercise (Fox, 2000). Many people experience an increase in self-esteem and positive well-being due to the physical benefits of exercise (CDC, 1999). Although a direct link has not yet been established, improved self-esteem during exercise could also be linked to the endorphin hypothesis. A chemical change in the brain during exercise can lead to feelings of euphoria. A study by Thogersen-Ntoumani, Fox, & Ntoumanis (2005) searched for links between global self-esteem and exercise in over 300 corporate employees. The authors measured levels of job satisfaction, life satisfaction, job affect, physical self-worth, self-esteem, and physical activity in the employees. They compared self-reports of all these aspects with how much exercise each employee was engaging in. The results indicated that physical self-worth and global self-esteem increased as the amount of exercise increased. The authors also noted a significant difference in feelings of well-being experienced by those who got less physical activity versus more physical activity. The results suggested that those individuals who got more exercise had better global self-esteem, physical self-worth, and overall feelings of well-being. This study is an example of how exercise can improve self-esteem, which may have a positive impact on those suffering from depression and anxiety.

Frank and Gustafson (2001) noted that research on exercise and self-esteem highlights a reciprocal relationship. In other words, individuals with high self-esteem are more likely to exercise which in turn sustains or improves self-esteem. If this is true, the

biggest challenge for therapists is to help clients become confident enough to begin an exercise program. When this is achieved, research suggests the likelihood of self-esteem continuing to improve with exercise compliance is high. Frank and Gustafson (2001) summarized that exercise has the most impact on self-esteem when individuals have low-self-esteem and low levels of physical activity initially.

## Implications for Using Exercise in Treatment Planning

Evidence has been presented showing that exercise could be a powerful tool in relieving symptoms of depression and anxiety. Research has also found that those who engage in regular physical activity may have higher self-esteem and experience improved sleep. How do health care professionals motivate patients to try it out for themselves? Several important and helpful tips for both patients and mental health providers have been suggested.

### *Gender Considerations*

As cited earlier, not only do twice as many women experience depression, but physical inactivity is also much more prevalent among women. Based solely on statistics, women in particular should be encouraged to begin or continue some type of exercise regimen. Hayes (1999) suggested that men and women may be socialized differently in regard to exercise. Whereas men may seek competitive and measurable goals in relation to exercise, women may look for non-competitive exercise routines which help foster independence or new friendships. Indeed each male and female will have a unique idea of what type of exercise environment would be most comfortable. It has also been suggested that men and women may get different needs met when they engage in physical activity (Hayes, 1999). Both will reap the physical benefits, but women in

particular may see exercise as a way to get their need for affiliation met through exercising with other people (Hill, 2002). Exercising with others may help foster new and stronger friendships and connections for women, which has been shown to be important in terms of overall life satisfaction. On the other hand, males and females who are more introverted may prefer an individual sport or activity such as walking to music or yoga (Laney, 2002). These types of gender specific issues should be considered when helping a client utilize exercise as a treatment additive.

*Helpful Hints*

Adding exercise to mental health treatment needs to be done in a deliberate and purposeful manner. Psychotherapists have a responsibility to consider the health and safety of each client, particularly for those clients who have not been active historically. In order for the client and therapist to feel comfortable beginning an exercise routine, the client needs to receive clearance from a physician. Therapists should also consider the severity of depression or anxiety. For milder forms of depression and anxiety, exercise may be a good starting point. In moderate to severe cases, exercise may be best utilized in conjunction with psychotropic medication or intensive psychotherapy (Mayo Clinic, 2005).

Therapist and client can look at incorporating exercise into treatment as another journey they embark on together. Hill (2002) does a thorough job of instructing clinicians on getting clients motivated and ready for a life-style change such as exercise. It has been suggested that therapist and client begin by exploring pre-existing attitudes about exercise. If exercise has been seen as an obligation or been related to negative evaluations in the past, it would be important to explore this. Client and therapist can

explore how exercise is connected to or leads to positive outcomes. What does the client enjoy doing? What types of exercise will he or she likely stick with? If exercise is not enjoyable or comfortable for clients, they will not likely make it a routine for which they can experience the mental health benefits. In finding out what is enjoyable clients are also gaining more personal insight and self-awareness.

If possible, exercise should be incorporated into treatment when other life stressors are low or decreasing (Hill, 2002). If it is not feasible for clients to add something else to their daily life, exercise treatment should be delayed. The most important thing is for clients to experience some level of success with exercise. If life is already too overwhelming or busy, clients may not be able to fit exercise in and subsequently view this as a failure. It may also be helpful if the client is encouraged to start slowly with minimal amounts of exercise to increase the likelihood of success.

Other considerations to explore are logistics such as money and exercise environment. Where will the client feel most comfortable? Can the client afford a gym membership; if not, what can the client do at home or outdoors that will be enjoyable? The client may feel self-conscious about working out with strangers or in public places. Counselor and client can explore apprehension and irrational beliefs regarding these feelings. Exercise can be utilized in any setting and environment that is preferable to the client. This is what sets exercise apart from traditional treatment methods such as medication, which is a feasible option only to those who have insurance and can afford it.

As with any other treatment plan, therapists should help clients prepare for setbacks or obstacles (Hayes, 1999; Mayo Clinic, 2005). Unforeseen changes in schedules, the weather, family obligations, and other daily life issues can pose challenges for clients

who are using exercise as a part of treatment. It may be helpful to encourage clients to treat an exercise session as they would any other medical or therapy appointment. Treatment compliance is a key factor when using exercise in therapy, just as with traditional psychotherapy and medication (Hayes, 1999).

Working with clients who already incorporate exercise into their lives may require a different approach by the therapist. Hill (2002) noted that people who regularly exercise may actually experience increased stress and anxiety if they give up exercise. It was pointed out that abandoning a routine requires re-adjusting personal habits, which can be uncomfortable for some people. Clients who already exercise regularly are likely experiencing the stress-relieving qualities of exercise and should be encouraged to continue exercise habits. It may be helpful to explore new exercise ideas or the many ways which exercise can be used as a coping strategy with clients who are already active.

## Conclusive Remarks

Clearly exercise has positive effects on both the mind and body. The evidence and research presented highlights key components linking exercise to mental health. Encouraging healthy and able clients to engage in exercise is a powerful tool for therapists to use. If all health care professionals come together in treating patients physically and mentally, there is an opportunity to foster healthier and happier people. In a trusting therapeutic relationship exercise can be encouraged and implemented with any treatment approach. Adding exercise to the treatment of depression and anxiety may result in better sleep, increased self-esteem, better physical health, and a decrease in symptoms. According to Hubble, Duncan, and Miller (1999), 40% of positive change in clients can be attributed to the client themselves or extra therapeutic change that occurs

outside of the therapy session. The research these authors have done implies that therapists need to give clients tools to use outside and beyond therapy in order to achieve mental health. Exercise is a component of this extra therapeutic change and another treatment tool the client can use on the path to recovery.

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